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## REPORT

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## REFERENCES

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INFORMATION REPORT INFORMATION REPORT

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MachineESZTERGOM MACHINE-TOOL PLANT

ESZTERGOMI SZERSZAMGEPYAR (Esztergom Machine-Tool Factory).

Former name: PETZ LATHES FACTORY

1. LOCATION

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South of the town of ESZTERGOM at a distance of about 120 m. from the perimeter and about 300 m. west of the highway Esztergom-Budapest. Between the road and the factory site there are some small new dwelling houses. To the south and the west of the site there is marshy ground.. The site is surrounded by a stone wall about 2 m. high. Length: about 300 m., width about 140 m.

2. PRODUCTION

## a) Range of products:-

- i) E-1-N centre lathe (discontinued at the beginning of 1956).
- ii) F-Z-U centre lathe (production began in 1956)
- iii) ME-1,000 milling machine
- iv) FW horizontal planer (in regular production since 1950)

## b) Productive capacity:-

If the technical level of the concern were raised and certain bottle-necks in machinery capacity were eliminated, the yearly output capacity of the plant could be as follows:

120 - 150	ME - 1,000 millers
190	FW planers
120	F-Z-U lathes

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(Note: If no lathes were produced, the number of millers could be increased substantially.)

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c) Current production

i) Up to 1953 the E-1-N lathe and the FW planer were in production. (The design of the lathe had been taken over from the former PETZ concern).

In 1953 it was decided to prepare the introduction of the MF-1,000 miller and the F-Z-U centre lathe. The two models were designed by the SZERSZAMGEP-FEJLESZTO INTÉZET (Machine-Tools Designing Institute), HALASTELEK, BUDAPEST XXI.

The designing, the preparation of the manufacturing processes and the production of the prototypes took so long that the production of the trial series of the miller began only at the end of 1955 and that of the lathe in the first half of 1956.

In the second quarter of 1956 there was a complete breakdown of the plant due to the initial difficulties in organising the full production of the two new lines. Only the production of the planers continued normally.

In the third quarter of 1956 production was up to schedule.

ii) The following table shows a rough outline of the concern's production of machine-tools.

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	E-1-N lathes	F-Z-U lathes	ME-1,000 millers	PW planers
1954	200 Plan:210	- (in prep- aration)	- (in prep- aration)	180 Plan:180
1955	260 Plan:250	Prototype completed	Prototype completed & 5 units of "O" series produced	190 Plan:190
1956 1st quarter	- dis- continued	5 (of "O" series) Plan:20	20 Plan:25	45 Plan:45
1956 2nd quarter	-	- (no pro- duction in view of re- organis- ation) Plan:20	c.10 (complete breakdown) Plan:25	45 Plan:45
1956 3rd quarter	-	10-15 Plan:30	25 Plan:25	45 Plan:45

iii) Foundry products. The shop produces the iron castings of beds for machine-tools and sundry other components. (No steel castings are produced.) The quantities produced cover the factory's own requirements. Over and above that, several other machine-tool plants receive supplies of iron castings.

d) Projected production:-

[redacted] production planned for 1957 was 200-250 ME-1,000 milling machines and 150-160 PW Planing machines. (The demand for the lathes is declining.) [redacted]

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e) Past production (see para. 2.c.)

In 1954 the plant produced, in addition to machine-tools, measuring instruments of all kinds

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(callipers, gauges, etc.). This production was in large quantities and was destined for armaments plants.

Supplies of materials and stocks were allocated under special priorities and wage fund levels were exceeded. This production was under security secrecy. (In the same period similar priority production was undertaken by the LANG Engineering Factory, 4th of April Engineering Factory, KOBANYA Machine-Tools Factory, SZERSZAMGEP TARTOZEK GEPGYARA (formerly OSISZOLO GEPGYAR) (Machine-Tools Accessories Engineering Factory) and the LEMEZMEGMUNKALO GEPGYAR (Plate Cutting Machine-Tool Factory).

### 3. IDENTITIES OF SOURCES

#### a) Materials:

#### Sources:

Iron castings	From own foundry
Steel castings, rolled steel shapes, plates.	ACELONTO ES CSOGYAR (Steel Castings & Tube Factory), Budapest. KESZLETEZO VALLALAT (Stocks & Supplies Enterprise), Budapest. Other concerns (but not direct from the large rolling mills and large foundries).
Steel Tubes	MAGYAR ACELARUGYAR (Hungarian Steel Goods Factory), Budapest.
Electrodes	KESZLETEZO VALLALAT (Stocks & Supplies Enterprise), Budapest. (Original producers not known.)
Steel scrap	VAFEM Scrap collecting & distributing concern.
Pig Iron & Coko.	KOHERT (Metallurgical Products Supplying Concern).
Copper & non-ferrous metals	METALLOGLOBUS (Distributing Concern). (Origin probably from imports.)
Cutting Tools.	MAGYAR ACELARUGYAR (Hungarian Steel Goods Factory), Budapest. SZERSZAMKESZLETEZO VALLALAT (Tool Supplying Concern), Budapest.

#### b) Quality of materials:

1) The quality of the castings is poor both in regard to porosity and precision of measurements.

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The porosity was attributed to the available moulding sand being of unsuitable quality, to the general carelessness of the personnel concerned only with quantity fulfillment and to shock-working.

The measurements of castings are far in excess of the measurements demanded, thus causing higher labour cost. The excesses averaged about 25% for iron and 20% for steel castings. To offset this, regulations were introduced by the Government, under which foundries are obliged to replace deliveries with excess weights of more than 22% for iron and 18% for steel castings. But in practice the castings are never rejected, because their replacement would take six months or longer.

. This problem has been in evidence for years. It applies to all foundries in Hungary. No solution is in view because workers are interested only in fulfilling and over-fulfilling their plan, which is measured by weight of material.

ii) Cutting tools are of inferior quality. The material is mostly too soft. The hardening process is not efficiently carried out. There is excessive breakage and the cutting edges wear too fast. "Vidia" tips are of good quality, but the method of fixing is unreliable. Tips break off frequently.

iii) The moulding sand used is unsuitable for producing satisfactory castings.

#### 4. DESTINATION OF PRODUCTS

Of the machine-tools produced, about 80% were supplied to domestic users and about 20% to TECHNOIMPEX, one of the foreign trade organisations. [REDACTED]

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[REDACTED]

There were no exports to the U.S.S.R.

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No deliveries were made to armaments plants.

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(The

only period when military acceptors were present was in 1954 when measuring instruments were being produced as referred to in Para. 2.e.).)

#### 5. TRANSPORT

Transport is by railway as well as by road haulage.

The cost of railway transport is about one-half of that by [ ] (A spur enters the site on the southern end.) Nevertheless a considerable portion of transportation is by road to save time, as the delivery dates both for incoming materials and outgoing products were continually being exceeded.

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#### 6. POWER

Only electric power is used. This is supplied from the national grid.

For an emergency the factory processes a small steam engine driven generating plant. Its capacity would be insufficient to keep up production if the national grid failed.

#### 7. LABOUR

a) The total number of employees is about 500-550, among which about 35% are women.

b) The technical level and the proportion of direct/productive and indirect/non-productive personnel are shown in the following table: (approximate figures).

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	Engineers	Technical staff (secondary school education)	Skilled manual workers	Unskilled workers	Total
Manual workers			135	135	270
Technical staff: (Chief engineer, chief technologist, designers, "dispatcher", quality control staff, etc.)	8	50		32	90
Administrative (accounts, book-keeping, costing, wages, etc.)	2	30		18	50
Non-productive personnel (transport workers, messengers, cleaners, etc.)				50	50
Apprentices				40	40
TOTAL	10	80	135*	175	500

\* This number of skilled manual workers is about 10% short of the establishment strength. This labour shortage has been in evidence for several years.

c) The number of shifts worked is three in the machine shops and two in the assembly shop and the foundry. Each shift is of 8 hours.

d) Absenteeism among manual workers averages about 6 - 8% in summer and autumn, when people often stay at home to do agricultural work.

e) The local availability of suitable labour is limited because the district is mainly agricultural.

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f) About 120-150 of the workers have their homes in villages in the district. They come to work by bicycle, motor bus [ ] belonging to the concern. Ther remainder live in the town of ESZTERGOM.

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#### 8. MACHINERY & EQUIPMENT

a) Roughly the following machinery is available:-

i) Machine shop:

- 3 Long planers (length 6-8m.) (one of which is a modern type made in Poland.)
- 10-12 Lathes of various types (but no turret lathes)
- 5-6 Cutters
- 5-6 Drilling machines
- 3 Gear cutters and grinders. Several other metal-working machine-tools.
- 1 Crane (capacity not known), which serves also the assembly shop.

ii) Tool Shop

3-4 Machine Tools

iii) Maintenance and Repair shop

4-5 Lathes and other machine-tools.

iv) Welding shop

2 Spot-welding machines

v) Foundry shop

1 Cupola furnace

In general the lathes are old and out-of-date models, lacking in precision. The planers and drilling machines are more modern and of higher efficiency.

b) Machine-tools shortage. There is a lack of gear cutters and grinders.

c) Measuring instruments. In general [ ]

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[ ] complaints about the lack of measuring instruments. Worn instruments were not being replaced.

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Many of the workers were obliged to share in the use of gauges, etc.

9. QUALITY AND QUALITY CONTROL

a) The concern's products are lacking in precision. They are noisy in operation.

For these reasons some 40-50% of the machine-tools on order for export were rejected by the acceptors of the foreign trade organisation. (Rejected machines were usually repaired and again submitted to the acceptors. If rejected a second time, they were supplied to domestic concerns, who were happy to get them. There was never any accumulation of stocks.)

b) The staff of quality controllers has a strength of about 20-22. The efficiency of the system during manufacture is very low. No quality control stamp is put on components and parts. Nor does the inspector stamp reject parts as such. All records regarding quality control were carried out only on lists and papers accompanying the lots. In theory rejects should have been marked with paint. But in view of shock-working conditions this was seldom done in practice. The result was that rejects were often used for assembly.

The quality control of completed machines was rather more efficient, because it was regarded important to select the best machines out of a series in order to offer them to the inspectors of the export organisation.

10. BOTTLENECKS

- a) General bottlenecks are caused by the following:-
- i) Lack of efficient organisation of the work.
  - ii) Failures in the power supply from the national grid.

Such were particularly frequent during the second half of 1955 and the first half of 1956. (This was due to shortage of coal).

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iii) Irregular production due to idling at the beginning and shock-working at the end of each month.

iv) Low level of technical efficiency and lack of skilled workers.

b) It can be said that from the middle of 1956 onwards there was an improvement, but by no means a real cure.

c) A complete breakdown of production could be brought about by the destruction of, or serious damage to, the transformer.

#### 11. SECURITY

a) Passes are required for entering the premises. The front door is guarded. Two door-keepers are on duty day and night.

b) The premises are patrolled by members of the works fire brigade.

c) Before and during Communist feast days a guard, reinforced to a strength of 12, patrols the premises. This guard is inspected by a local police officer and a delegate from the Ministry of Metallurgy and Engineering. Telephone communication is ensured for an instant alert.

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this service is efficient to deal with any sabotage.

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12.

a) There are no secret departments in this plant excepting the special case dealt with in Para. 2.e.

b) The concern is subordinate to the Chief Directorate for the Mechanical Engineering Industry in the Ministry of Metallurgy and Engineering.

c) Identities of executives:-

i) Director: (fnu) ~~FEENYOHRAZI~~

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**SECRET**ii) Chief Engineer: (fnu) PETO

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iii) Chief Accountant: (Dr.) (fnu) BOLDOG**13. SKETCHES**

The following sketches are attached hereto:-

- a) Sketch and key showing location of plant.
- b) Sketch showing layout of premises.
- c) Ground plan of Machine shop and Assembly shop.

**NOTE:**

1. Only about 20% of the concern's production is destined for export. They would like to increase the proportion; but there are difficulties in getting the machine-tools accepted by the quality inspectors of the foreign trade organisation and of the organisation acting on behalf of foreign buyers (MERT).

2. The types of machine-tools produced now are the F-Z-U lathe, the ME-1,000 miller and the FW horizontal planers.

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3.

4. This plant is by no means the most modern machine-tool factory in Hungary. There are only two up-to-date factories to-day, the BUDAPEST MACHINE-TOOL FACTORY, Budapest,

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and the FEMARU-ES SZERSZAMGEPYAR (Metal goods and Machine-  
Tool Factory), SOROKSARI-UT, Budapest.

5. The plant has its own foundry for iron castings,  
but not for steel castings.

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**SECRET**Lay of site of ESZTERGOM MACHINE-TOOL PLANTKey:

1. Road to ESZTERGOM
2. Main entrance
3. Spur entering plant
4. Bicycles - parking
5. Canteen
6. Cashier's desk for wage paying
7. Central offices (one storey), containing Director's office, Chief Engineer's office, planning office, accounts, etc.
8. Open-air deposit for stocks of castings, scrap, etc.
9. Foundry
10. Workshop offices and small store rooms
11. Welding shop
12. Iron and rolled steel and other stores
13. One-storey building containing the designing office grd. floor, "norms" office and Chief Technologist's office on 1st floor.
14. Shed
15. Maintenance and repair shop
16. Transformer and switches
17. Boiler house with smoke chimney in the centre (height 25-30m.)
18. Machine shop and assembly
19. Open-air deposits for coal, waste, bricks, etc.

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ESZTERGOM MACHINE-TOOL PLANT

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Machine shop and assembly shop

Key:

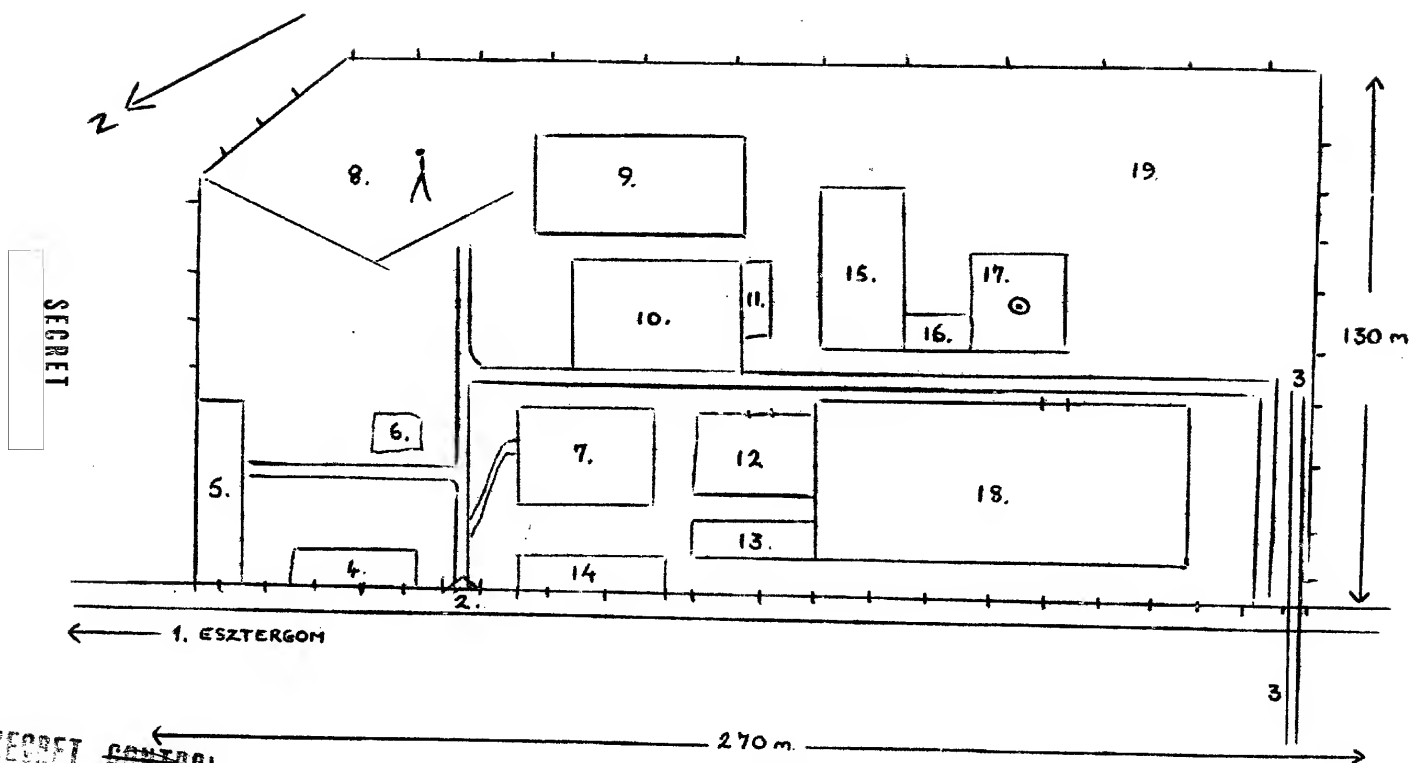
1. Main entrance
2. Door for pedestrians
3. Drilling machines and long planers
4. Drilling and milling machines
5. } Lathes
6. }
7. Tools shop
8. Gear cutters and grinders
9. Offices (quality control, work shop  
administration and supervision)
10. Semi-finished materials
11. Assembly (floor space: 30 x 30 m.)
12. Painting shop
13. Completed machine-tools
14. Canteen

(Total floor space : about 110 x 50 m.)

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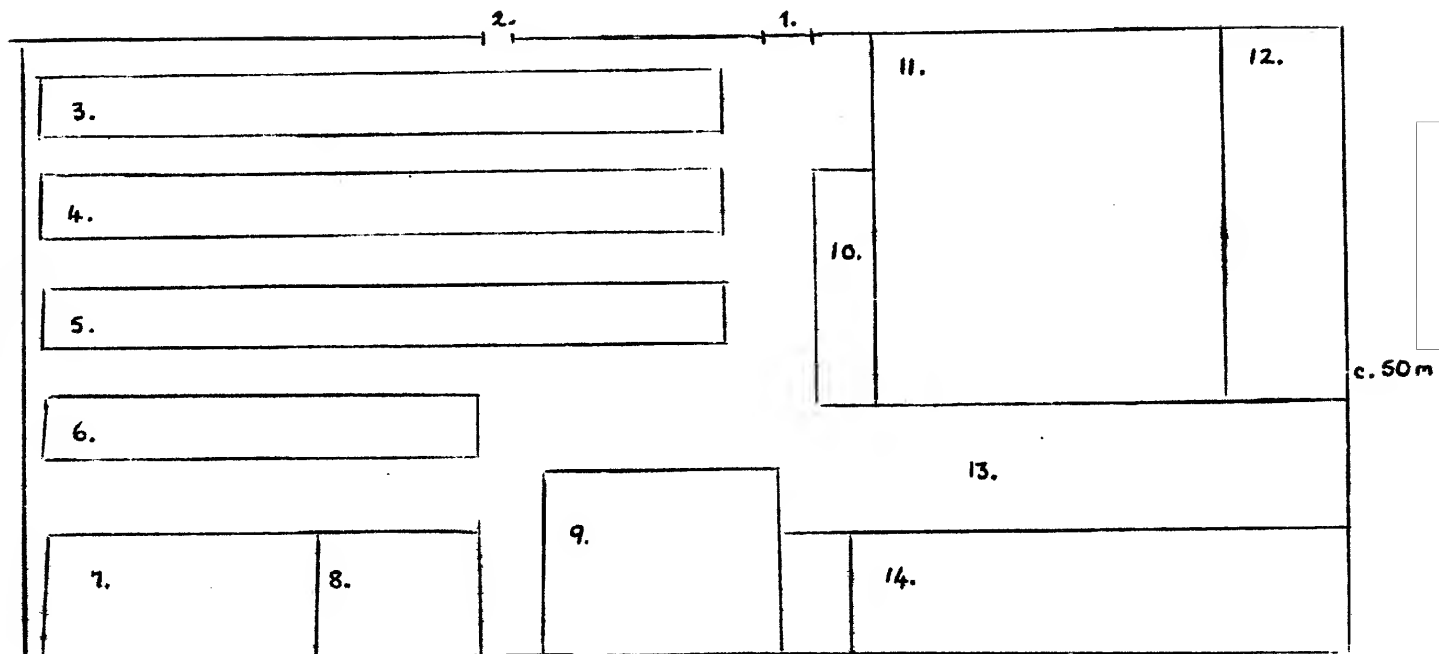
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LAY OF SITE OF ESZTERGOM MACHINE-TOOL PLANT

SCALE 1:1,200



SCALE (about) 1:410

10 m.

c. 110 m.

ESZTERGOM MACHINE-TOOL PLANT

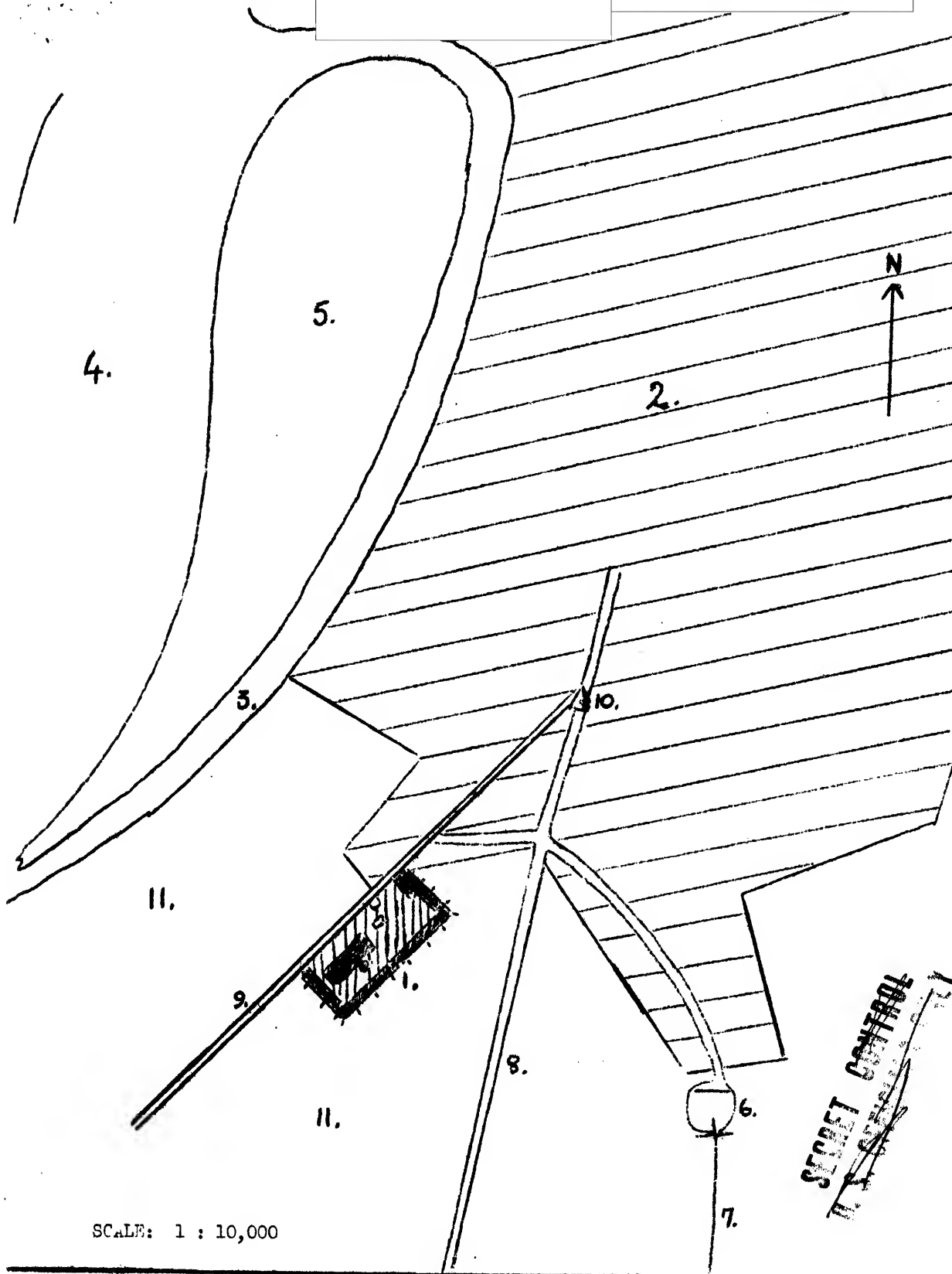
Machine shop and Assembly shop.

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1. ESZTERGOM MACHINE-TOOL FACTORY

2. ESZTERGOM TOWN, BUILT-UP AREA

3. ARM OF DANUBE

4. RIVER DANUBE

5. ISLAND

6. RAILWAY STATION

7. SINGLE TRACK RAILWAY LINE TO DOROG

8. HIGHWAY TO DOROG-BUDAPEST (asphalt surfaced)

9. MACADAM ROAD

10. CHURCH

11. MARSHY GROUND

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